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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<table>
<tr><td rowspan="2">Office Action Summary</td><td>Application No.</td><td>Applicant(s)</td><td></td></tr>
<tr><td>10/521,789</td><td>SATO ET AL.</td><td></td></tr>
<tr><td></td><td>Examiner</td><td>Art Unit</td><td></td></tr>
<tr><td></td><td>DARREN SCHWARTZ</td><td>2135</td><td></td></tr>
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-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>24 June 2008</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-21</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-21</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>24 June 2008</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to because in Figure 10, elt 900b is not functionally

equivalent to 900a; specifically line 11, in the Examiner's judgment, should read

"if(S<A[**N**]S=A[N]". Corrected drawing sheets in compliance with 37 CFR 1.121(d)

are required in reply to the Office action to avoid abandonment of the application. Any

amended replacement drawing sheet should include all of the figures appearing on the

immediate prior version of the sheet, even if only one figure is being amended. The

figure or figure number of an amended drawing should not be labeled as "amended." If

a drawing figure is to be canceled, the appropriate figure must be removed from the

replacement sheet, and where necessary, the remaining figures must be renumbered

and appropriate changes made to the brief description of the several views of the

drawings for consistency. Additional replacement sheets may be necessary to show the

renumbering of the remaining figures. <u>Each drawing sheet submitted after the filing date</u>

<u>of an application must be labeled in the top margin as either "Replacement Sheet" or</u>

<u>"New Sheet" pursuant to 37 CFR 1.121(d).</u> If the changes are not accepted by the

examiner, the applicant will be notified and informed of any required corrective action in

the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 7, 17 and 18 are objected to under 37 CFR 1.75(c), as being of improper

dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s)

in proper dependent form, or rewrite the claim(s) in independent form. The claims listed

incorporate additional features of the watermark insertion/extraction apparatus without

further limiting the subject matter of the claims upon which they incorporate features of

claims 1, 12 and 15.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of
making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 11 and 19 are further rejected under 35 U.S.C. 112, first paragraph, as

failing to comply with the written description requirement. The claim(s) contains subject

matter which was not described in the specification in such a way as to reasonably

convey to one skilled in the relevant art that the inventor(s), at the time the application

was filed, had possession of the claimed invention. The specification is silent to a

computer readable media.

It is suggested that the applicant to particularly point out where in the

specification support can be found for the amended limitation "computer readable

media."

Regardless of the aforementioned issues, the examiner has considered all the

limitations of claims 11 and 19 as presented in the amendment filed 24 June 2008.

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
conditions and requirements of this title.

2.   Claims 1-8 and 11-21 are rejected under 35 U.S.C. 101 because the claimed

invention is directed to non-statutory subject matter. Claims 1-8 and 11-21 are directed

to a program, *per se*. The body of the claim is directed to the logic steps and computer

program sections of the program itself, although, the claim recites memory, no actual

structure of the memory is being recited. Furthermore, no actual implementation of the

machine/computer is recited into the claim and no actual execution of the program has

been implemented. The claim is basically reciting what program steps a program can

do. Therefore, it is treated as a program alone.

      Further, the claimed computer-readable medium having computer-executable

instruction does not create any functional interrelationship, either as part of the stored

data or as part of the computing processes performed by the computer, and such

descriptive material alone doesn't impart functionality either to the data as so structured,

or to the computer. The act of having computer-executable instructions does not impart

the functional interrelationship necessary for statutory subject matter. The instructions

must be executed to properly impart the functional interrelationship between the media

and the instructions that is required by 35 U.S.C. 101.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed
publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by
another filed in the United States before the invention by the applicant for patent or (2) a patent

> granted on an application for patent by another filed in the United States before the invention by the
> applicant for patent, except that an international application filed under the treaty defined in section
> 351(a) shall have the effects for purposes of this subsection of an application filed in the United States
> only if the international application designated the United States and was published under Article 21(2)
> of such treaty in the English language.

4.   Claim 9 is rejected under 35 U.S.C. 102(a) as being anticipated by Cousot et al

(U.S. Pat Pub 2006/0010430 A1), hereinafter referred to as Cousot.

        Re claim 9: Cousot teaches a watermark insertion method wherein: watermark

that differs for each program distribution destination is inserted in said program and said

watermark is used; watermark verification code that is identical regardless of said

distribution destination is inserted in said program (see at least: ¶23-¶24, ¶85, ¶87, ¶89,

¶97, ¶99, ¶103-¶104, ¶200, ¶211, ¶212, ¶264-¶269); said program is prevented from

operating correctly when said watermark is tampered with (¶103, ¶269).

5.   Claims 10, 12-14, 16, 19 and 20 are rejected under 35 U.S.C. 102(e) as being

anticipated by Horning et al (U.S. Pat Pub 2007/0234070 A1), hereinafter referred to as

Horning.

        Re claim 10: Horning teaches a watermark insertion method comprising:

inserting in a program watermark that differs for each program distribution destination

(¶606); and converting a part other than a location at which said watermark is inserted

while maintaining specifications of said program (¶610-¶611).

        Re claim 12: Horning teaches a watermark insertion apparatus comprising: a

watermark insertion section that inserts in a program watermark that differs for each

program distribution destination (¶606); and a conversion section that converts a part

other than a location at which said watermark is inserted while maintaining

specifications of said program (¶610-¶611).

Re claim 13: Horning teaches said conversion section inserts an execution code

pair that does not affect specifications in a part other than a location at which said

watermark is inserted (¶18, ¶151, ¶610-¶611).

Re claim 14: Horning teaches identification information is stored that indicates an

insertion location of said watermark (Fig 37A: ¶615-¶617).

Re claim 16: Horning teaches said conversion section performs obfuscating so

that specifications are not affected in a part other than a location at which said

watermark is inserted (¶606, ¶610-¶611).

Re claim 19: Horning teaches a computer-readable medium having a program

that causes a computer to: insert in a program watermark that differs for each program

distribution destination (¶606); and convert a part other than a location at which said

watermark is inserted without changing specifications of said program (¶610-¶611).

Re claim 20: Horning teaches said conversion section converts a sequence of a

part that is a part other than a location at which said watermark is inserted and is a part

that does not affect specifications even if said sequence is switched around (¶606,

¶610-¶611).

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 1-8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Cousot et al (U.S. Pat Pub 2006/0010430 A1), hereinafter referred to as Cousot, in

view of Horning et al (U.S. Pat Pub 2007/0234070 A1), hereinafter referred to as

Horning.

Re claim 1: Cousot teaches a watermark insertion apparatus (Abstract: lines 1-5)

comprising:

a watermark insertion section that inserts in a program watermark that differs for

each of a plurality of distribution destinations of said program; the watermark verification

code inserted in said program distributed to the plurality of distribution destinations, is

made identical regardless of said distribution destinations; variables are assigned

functions of values of the watermark, where the sum of said functions of said values is

zero; and the sum of said variables is added, as watermark verification code, in a

decision statement of the program so that the result of the decision statement of the

program is not affected if the watermark and the watermark verification code have not

been tampered, but is affected otherwise (see at least: ¶23-¶24, ¶85, ¶87, ¶89, ¶97,

¶99, ¶103-¶104, ¶200, ¶211, ¶212, ¶264-¶269);

However, Horning teaches:

a code insertion section that inserts in said program per each of the plurality of

distribution destinations a watermark verification code that prevents said program from

operating correctly when said watermark is tampered with; for said program to be made

to operate correctly, said watermark verification code is necessary (¶524-¶526).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Cousot with the teachings of Horning, for the purpose of preventing the illegal removal of watermarking. The Horning reference teaches protecting an executable file by using at least, obfuscation, watermarking and armoring while Horning teaches a particular method of protecting an executable file.

Re claim 2: The combination of Cousot and Horning teaches said watermark is generated from ID information that uniquely determines a program distribution destination (Cousot: ¶23, ¶39, ¶106, ¶170; Horning: Abstract, lines 12-13).

Re claim 3: The combination of Cousot and Horning teaches a function insertion section that defines a function that outputs a predetermined constant from said watermark and inserts an expression that assigns said function to a variable in said program (Cousot: ¶129-¶133, program after ¶136 on page 7, ¶269, and program "`private static void bubbleSort (double[] r0, int i0)`" on page 21); wherein said watermark verification code is a conditional branch that determines whether said variable and said constant are equal, and when said variable and said constant are not equal halts said program (Horning: ¶401,¶403,¶409-¶410, ¶455); and said watermark verification code is made identical regardless of said distribution destination (Cousot: ¶128-¶136 and the Watermarked Program: "`public class Fibonacci`" and the program after ¶136 on page 7; the program uses two variables to identify the watermark and remain invariant).

Re claim 4: The combination of Cousot and Horning teaches watermark verification code is necessary for said program to be made to operate correctly (Cousot: ¶103, ¶269; Horning: ¶524-¶525, ¶620-¶621).

Re claim 5: The combination of Cousot and Horning teaches said watermark verification code has inserted a calculation expression that does not affect a decision statement of a decision branch generated from said watermark in said decision branch extracted from said program (Cousot: see on page 18, "`public class Fibonacci`" and page 19, "`public class fibonacciWatermark;`" the watermarked Fibonacci class has no decision statements that are affected by the watermarking).

Re claim 6: The combination of Cousot and Horning teaches a program input section that inputs a program in which the watermark insertion apparatus according to claim 1 has inserted said watermark and said watermark verification code (Cousot: Abstract; Horning: ¶616 and ¶621); and

a watermark detection section that extracts said watermark from said program and generates ID information that uniquely identifies said distribution destination based on said watermark (Cousot: ¶6, ¶51, ¶82, ¶170, ¶212);

wherein a distribution destination is identified based on generated said ID information (Cousot: ¶23, ¶39, ¶106, ¶170; Horning: Abstract, lines 12-13).

Re claim 7: The combination of Cousot and Horning teaches a program illegal distribution prevention system comprising:

the watermark insertion apparatus according to claim 1; a program input section that inputs a program in which the watermark insertion apparatus according to claim 1

has inserted said watermark and said watermark verification code (Cousot: Abstract; Horning: ¶616 and ¶621); and

a watermark detection section that extracts said watermark from said program and generates ID information that uniquely identifies said distribution destination based on said watermark (Cousot: ¶6, ¶51, ¶82, ¶170, ¶212);

wherein a distribution destination is identified based on generated said ID information (Cousot: ¶23, ¶39, ¶106, ¶170; Horning: Abstract, lines 12-13).

Re claim 8: The combination of Cousot and Horning teaches said watermark insertion apparatus is provided at said distribution destination (Horning: ¶607-¶609).

Re claim 11: Cousot teaches a computer-readable medium having a watermark insertion program that causes a computer to (Abstact, lines 507; ¶3; ¶45): insert a program watermark that differs for each of a plurality of distribution destinations of said program; the watermark verification code inserted in said program distributed to the plurality of distribution destinations, is made identical regardless of said distribution destinations; for said program to be made to operate correctly, said watermark verification code is necessary; variables are assigned functions of values of the watermark, where the sum of said functions of said values is zero; and the sum of said variables is added, as watermark verification code, in a decision statement of the program so that the result of the decision statement of the program is not affected if the watermark and the watermark verification code have not been tampered, but is affected otherwise (see at least: ¶23-¶24, ¶85, ¶87, ¶89, ¶97, ¶99, ¶103-¶104, ¶200, ¶211, ¶212, ¶264-¶269).

However, Horning teaches:

distribution destination in said program for distribution insert in said program per each of the plurality of distribution destinations a watermark verification code that prevents said program from operating correctly when said watermark is tampered with (¶524-¶526).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Cousot with the teachings of Horning, for the purpose of preventing the illegal removal of watermarking. The Horning reference teaches protecting an executable file by using at least, obfuscation, watermarking and armoring while Horning teaches a particular method of protecting an executable file.

8.   Claims 15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horning et al (U.S. Pat Pub 2007/0234070 A1), hereinafter referred to as Horning, in view of Cousot et al (U.S. Pat Pub 2006/0010430 A1), hereinafter referred to as Cousot.

Re claim 15: Horning teaches all the limitations of claim 14 as previously discussed. However, Cousot teaches said identification information is a method name or line number (¶23-¶24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Horning with the teachings of

Cousot, for the purpose of providing easily locating watermark/fingerprint/identification

information in an executable program.

Re claim 17: Horning a program input section that inputs a program in which the

watermark insertion apparatus according to claim 12 (see above).

However, Cousot teaches a watermark extraction apparatus comprising: and a

watermark detection section that extracts said watermark from said program (Abstract);

wherein a distribution destination is identified based on extracted said watermark

(Abstract).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to have modified the teachings of Horning with the teachings of

Cousot, for the purpose of providing a retrieving and verifying a watermark in an

executable program. The Horning reference teaches methods for armoring an

executable program using various techniques including watermarking while the Cousot

reference teaches a particular method of watermarking executable programs.

Re claim 18: The combination of Horning and Cousot teaches a watermark

extraction apparatus comprising: a program input section that inputs a program in which

the watermark insertion apparatus according to claim 15 has inserted said watermark

(see above); and a watermark detection section that obtains said identification

information, identifies a watermark insertion location from said identification information,

and extracts said watermark from only identified said watermark insertion location

(Abstract); wherein a distribution destination is identified based on extracted said

watermark (Abstract).

9.   Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horning

et al (U.S. Pat Pub 2007/0234070 A1), hereinafter referred to as Horning, in view of

Davidson et al (U.S. Pat 5559884 A), hereinafter referred to as Davidson.

Re claim 21: Horning teaches all the limitations of claim 20 as previously

discussed. However Davidson teaches historical information [execution flow] on a part

that does not affect said specifications is held, and using said historical information

[execution flow], conversion of a part that does not affect said specifications is made to

differ for each distribution destination (whole Abstract; col 2, lines 61-67).

Response to Arguments

10.   The amendment to Figure 10 has been acknowledged, however, the amendment

to the drawing is non-compliant pursuant to 37 CFR 1.121(d). The applicant and

applicant's representative are reminded that replacement/new drawing sheets must be

accompanied in the amendment and labeled as such to comply with 1.121(d). The

objection to Figure 10 is maintained as described above.

11.   The previous grounds of 35 U.S.C. 112 rejection of claims 1-8 has been

withdrawn in light of the claim amendments, however, the amendment to the claims filed

24 June 2008 has raised an issue regarding written description under 35 U.S.C. 112;

see above.

12.   Applicant's arguments filed with regard to the 35 U.S.C. 101 rejection have been

fully considered but they are not persuasive. Additionally, the Examiner has raised a

new grounds of rejection regarding 35 U.S.C. 101 pertaining to claims 1-21; see above.

13.   Applicant's arguments with respect to the 35 U.S.C. 102 and 35 U.S.C. 103

rejection of claims 1-21 have been considered but are moot in view of the new

ground(s) of rejection.

Conclusion

Examiner's Note: Examiner has cited particular columns and line numbers in the

references applied to the claims above for the convenience of the applicant. Although

the specified citations are representative of the teachings of the art and are applied to

specific limitations within the individual claim, other passages and figures may apply as

well. It is respectfully requested from the applicant in preparing responses to fully

consider the references in entirety as potentially teaching all or part of the claimed

invention, as well as the text of the passage taught by the prior art or disclosed by the

examiner.

In the case of amending the claimed invention, Applicant is respectfully

requested to indicate the portion(s) of the specification which dictate(s) the structure

relied on for proper interpretation and also to verify and ascertain the metes and bounds

of the claimed invention.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to DARREN SCHWARTZ whose telephone number is

(571)270-3850. The examiner can normally be reached on 8am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kim Vu can be reached on (571)272-3859. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. S./
Examiner, Art Unit 2135
        /KimYen Vu/
        Supervisory Patent Examiner, Art Unit 2135